Chapter 3
Impact of Collective Intelligence on Business Management:
A Literature Review

Rafael Martínez-Cortiña
Rey Juan Carlos University, Spain

ABSTRACT

Collective intelligence is the ability of people and computers to meet challenges more effectively than separately. It has contributed to changing business administration in recent decades. Although it is an emerging field with no established definition, some studies indicate that collective intelligence generates benefits for management. This systematic literature review identifies aspects of human-machine collaboration that allow a competitive advantage. Some researchers have identified common characteristics in collective intelligence. Harnessing the intelligence of a crowd leads to positive impacts on business management. Future research can focus on the ethical values of human-computer collaboration. Humans play a more relevant role in collective intelligence than technology, but that may change in the future. It can affect aspects like the learning process, knowledge development, decision making, and problem-solving. The increasing presence of technology in management raises ethical questions and opens a wide field of study on collaboration between humans and machines.

DOI: 10.4018/978-1-6684-6454-0.ch003

INTRODUCTION

The business administration discipline has seen significant changes over the past two decades (Calof et al., 2022). The process of change experienced by organizational management is related to globalization, Big Data, the use of different technologies, the creation of networking in the work environment, and the use of collective knowledge as an intangible asset (Peñaloza, 2018). This author highlights that traditional management, which focuses on costs and benefits per product unit, has become obsolete after the logic of Big Data and collective intelligence, which point to a greater understanding of the problems faced by companies (Palos-Sanchez et al., 2019; Ribeiro-Navarrete et al., 2021).

Intelligence applied to management has significantly influenced business organizations at a time when Big Data provides benefits to businesses (López-Robles et al., 2019). Intelligence applied to management is understood as collecting, analyzing, interpreting, and disseminating high-value data for decision-making (Vukšić et al., 2013). Business organizations now operate in dynamic environments that require process improvement, the distribution of new products and services enhanced by technology, and the use of information throughout the entire value chain (Johannessen, 2008). Intelligence activities aim to expand the competitiveness of business organizations and economic sectors (López-Robles, 2019).

Collective intelligence is the term that describes how people and computers can connect to act more intelligently than individuals, groups, or computers alone (Malone et al., 2008, 2010). Lévy (1997) defined it as a "universally distributed form of intelligence, constantly improved, coordinated in real time and resulting in the effective mobilization of skills." It is also regarded as the synergy between three elements: 1) data/information/knowledge, 2) software/hardware, and 3) groups of people who interact to produce new knowledge that allows them to make better decisions than they would make alone (Glenn, 2015).

Collaborative collaboration refers to when a business transfers a task from a limited group of individuals, often from its human resources, to an indeterminate network of people (Wazny, 2017). Companies with higher levels of collective intelligence present a higher quality of decisions in terms of precision (McHugh et al., 2016), agility (Gilliland, 1992), and depth in decision making (Rincón et al, 2018). Marketers apply collective intelligence to create and apply methodologies that enable better targeting and customization of solutions. These generate a competitive advantage when they can analyze preferences, adapt products to their customers, discover groups of similar consumers and build personalized price models on demand (Bruckhaus, 2010; Saura et al., 2021a).

Traditional marketing methodologies have struggled to produce efficient actions from the little available data. This constraint has changed with Big Data